

Data Quality Assessment Report: Tanzania

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Through action research and development partnerships, Africa RISING is creating opportunities for smallholder farm households to move out of hunger and poverty through sustainably intensified farming systems that improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base.

The three regional projects are led by the International Institute of Tropical Agriculture (in West Africa and East and Southern Africa) and the International Livestock Research Institute (in the Ethiopian Highlands). The International Food Policy Research Institute leads the program's monitoring, evaluation and impact assessment.

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# Introduction

In February 2021, AR through MEAL department, conducted a routine data quality audit (RDQA) among a representative sample of villages as well as development partners and researchers and lead farmers who takes the lead in conducting various agriculture research trials in all four districts of Kongwa, Kiteto, Babati and Karatu for selected indicators. The primary purpose of the data quality assessment was to assess whether the data reported by researchers from the villages and development partners is accurate and valid and that they conform to data sources selected for evaluation. The assessment is also intended to assess the concordance of data reports from routine data collection systems. The secondary purpose of this exercise was to evaluate AR overall data management system with emphasis on assessing the quality of data on the primary data sources and the reports generated and submitted to BTTT using standard data assessment tools. Assessment findings identified is to help facilitate improvement of AR monitoring systems at the villages and district level. The RDQA also highlights the strength and weaknesses of villages, districts, development partners, and the AR data management systems.

# List of indicators under review for the RDQA

Following the fact that the time was not much enough to cover the assessment for all project indicators, the following were list of indicators selected for the routine assessment purpose due to their potential, keenness and the role they play to contribute to project high level 5 indicators.

1. Number of direct beneficiaries reached by AR researchers
2. Number of scaling beneficiaries reached by development partners

## Objectives

The overall objectives of the RDQA were to verify the project data reported by researchers against the source data at the village level.

### Specific Objectives

Specific objectives for this task were ;

1. Assess the quality of data (reports) in terms of its concordance with the source forms registers submitted by the supervisors through standard data quality parameters such as its validity, reliability, timeliness, precision, and integrity into the BTTT database
2. Assess completeness of beneficiary's data in the registry book
3. Estimate the margin of error of reported data vis-à-vis source data by villages and district
4. Identify areas of potential vulnerability that affect the general credibility and usefulness of the datasets
5. Recommend measures to address any identified weaknesses in the data submitted by researchers

Key standard data quality parameters to this assessment were as depicted in the table below.

**Table 1.** Standard data quality parameters to this assessment.

|  |  |
| --- | --- |
| **Data quality dimensions** | **Operational definition** |
| Completeness | Defined by the existence of beneficiary data in registry book for a set of key variables |
| Concordance | Defined by data reported in BTTT compared with primary sources (registry books) |

## Methodology

The sample of villages were randomly selected to meet all the objective set out. The sample was from across all four Districts; Kongwa, and Karatu districts resulted in three villages, while Kiteto and Babati districts each had two villages. Verification/recounting of data was done for each researcher who is currently working in the village. Apart from that, DQA was also done to two development partners and notably Lead Foundation from Dodoma region and Island of Piece from Arusha region.

# Summary of findings

The DQA reviewed a total of five researchers' registry books through their -lead farmers across all four districts in ten villages and two development partners to rapidly verify source data against the data reported in BTTT for 2020.

The general observation made from the observed data sources and those reported in the BTTT was that data sources were missing in some villager to a particular Lead Farmer. Missing source document affects reports that may have been produced because it indicated that the number reported in the village might be wrong or ghost numbers. Likewise, available source data in some villages were either complete for all beneficiaries. The other was incomplete(not correctly indicating whether names registered belong to AR, a particular researcher or not). Therefore, the registry books to each lead farmer that records the participation of beneficiaries were used exclusively as the paper reporting data source for this activity. A proportional or variance of reported against recounted numbers of 0% represents the highest possible quality score. Quality decreases as the numeric value veers away from 0%, either higher or lower, until data quality is considered flawed when the error margin veers away from +-5%.

## Key assessment area results

### Documentation Review Assessment for Data Sources

This part included a review of the availability and completeness of all indicator source documents for the selected reporting period in whether missing data sources were in play, whether data sources were complete for all groups based on the number reported and whether they felt within the reporting month subject to assessment. The results note that there was no indication that the document misses for all groups, some were utterly matching, and some just partly as depicted below, but all reporting dates on data sources were within the reporting period as indicated in the table below.

**Table 2. Documentation review assessment for data sources**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Village/Development partner | Researcher name | Missing source documents | Source documents completion for all groups | Records fall within the reporting period |
| Sagara A | Elirehema Swai | No | yes-partly | Yes |
| Nghumbi | Elirehema Swai | No | yes-partly | Yes |
| Anthony Kimaro | No | yes-partly | Yes |
| Mlali Iyegu | Elirehema Swai | No | Yes -Completely | Yes |
| Patrick Okori | No | Yes -Completely | Yes |
| Mawazo Shitindi | No | yes-partly | Yes |
| Anthony Kimaro | No | Yes -Completely | Yes |
| **Lead Foundation** | Elirehema Swai | No | Yes -Completely | Yes |
| Njoro | Patrick Okori | No | Yes -Completely | Yes |
| Anthony Kimaro | No | Yes -Completely | Yes |
| Kiperesa | Elirehema Swai | No | Yes -Completely | Yes |
| Patrick Okori | yes | Not at all | NA |
| Sabilo | Job Kihara | No | yes-partly | Yes |
| Galapo | Job Kihara | No | Yes -Completely | Yes |
| Sla hhamo | Sognibe D'Nkou | No | Yes -Completely | Yes |
| Rothia Kainani | Sognibe D'Nkou | No | Yes -Completely | Yes |
| Bashay | Sognibe D'Nkou | No | Yes -Completely | Yes |
| **IOP** | D'Nkou/Mtungi | No | Yes -Completely | Yes |

During the exercise, it was noted that data for source documents were available in nearly all villages except for Kiperesa. The lead farmer claimed to have the document some days earlier, but he couldn't provide when he waited for some days, and he has been instructed to prepare the registry and record all beneficiaries accordingly.

Villages coordinated by the researchers ELirehema Swai, Anthony Kimaro,Mawazo Shitindi, and Job Kihara respectively in names of Sagara A, Nghumbi, Malali Iyegu, and Sabilo had documents in place partly complete. Because the beneficiaries were listed, but it was not clear if the names belong to AR Lead farmers. The researchers were asked to name the registry correctly, list all beneficiaries and the associated technology in the village.

### Recounting reported Results

This part included recounting results from source documents for specific sampled villages and the researcher and lead farmer in the village, compared to the verified numbers to the site reported numbers from the BTTT. As noted in the previous section, a proportional of reported against recounted numbers of 0% represents the highest possible quality score. Quality decreases as the numeric value veer away from 0%, either higher or lower by +-5% variance.

**Table 2**. Proportional /% variance of the recounted numbers in the source documents against numbers reported in BTTT.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Assessment Result Area | | | Recounted Numbers in the data sources | | Reported Numbers in BTTT | | % variance | | Status | Remark |
| District Council | Village/Development partner | Researcher Name | Direct Beneficiaries | Scaling Beneficiaries | Direct beeficiaries | Scaling beneficiaries | Direct beeficiaries | Scaling beneficiaries |
| Kongwa | Sagara A | Elirehema Swai | 22 |  | 22 |  | 0 |  | correct |  |
| Nghumbi | Elirehema Swai | 60 | 38 | -36.7 |  | underreported by 36.7% | 22 names taken for inclusion in BTTT |
| Anthony Kimaro | 51 | 0 | -100 |  | underreported by 100% | 51 names taken for inclusion in BTT |
| Mlali Iyegu | Elirehema Swai | 192 | 192 | 0 |  | correct |  |
| Patrick Okori | 96 | 94 | -2.1 |  | underreported by 2.1% | 2 names taken for inclusion in BTT |
| Mawazo Shitindi | 7 | 7 | 0 |  | correct |  |
| Anthony Kimaro | 206 | 206 | 0 |  | correct |  |
| Dodoma | **Lead Foundation** | Elirehema Swai |  | 1300 |  | 1300 |  | 0 | correct |  |
| Kiteto | Njoro | Patrick Okori | 280 |  | 280 |  | 0 |  | correct |  |
| Anthony Kimaro | 103 | 103 | 0 | correct |  |
| Kiperesa | Elirehema Swai | 45 | 45 | 0 | correct |  |
| Patrick Okori | 16 | 16 | 0 | correct |  |
| Babati | Sabilo | Job Kihara | 70 |  | 69 |  | -1.4 |  | Under reported by 1.4% | 1 name for inclusion in BTTT |
| Galapo | Job Kihara | 70 | 70 | 0 | correct |  |
| Karatu | Sla hhamo | Sognibe D'Nkou | 48 |  | 58 |  | 20.8 |  | over reported by 20.8% | 10 unreplaced drop outs |
| Rothia Kainani | Sognibe D'Nkou | 58 |  | 58 |  | 0 |  | correct |  |
| Bashay | Sognibe D'Nkou | 64 |  | 64 |  | 0 |  | correct |  |
| **IOP** | D'Nkou/Mtungi |  | 1256 |  | 1256 |  | 0 | correct |  |

The table above shows good data overall in many villages except poor data practices in Nghumbi village for Elirehema Swai and Anthony Kimaro and Dr. D'Nkou, in Sla hanno village. For Swai, the number was under-reported by 36.7% since there were more beneficiaries in the registry book with all the names written than those he reported in the Beneficiary Technology tracking Tool, similar to Dr. Anthony's, it was noted that he had never reported the number in the BTTT despite having more than 51 beneficiaries in the village.

All the names of beneficiaries from this village were taken so that they are included in the BTTT. Likewise, poor data scenarios were observed in Slahanmo village, where about 10 beneficiaries were reported in BTTT as participating in the research field testing, but the fact is that these are long-time dropout and were never replaced.

Based on the findings of the systems' review and data verification at the village, several challenges to data quality have been identified, and recommendation is after that given for strengthening with measures, estimate the length of time the improvement measure could take, these are to be in detail discussed with the program as identified findings may be playing out on many other remaining villages.

# Recommendations for the identified weaknesses

The findings obtained also provide truth to much higher directions, and weaknesses identified below should be dealt with accordingly to ensure maximum data quality. The table below summarizes specified liabilities and actions to be taken to address them.

**Table 3.** Recommendation for the identified weaknesses.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No** | **Identified weaknesses** | **Description of Action point taken** | **Responsible** | **Timelines** |
| 1. | Paper recording of beneficiary names instead of registry books | Register all names in clearly marked registry books with all details | Researchers/Lead Farmer/M&E | March -April |
| 2. | More number of beneficiaries in registry book than in BTTT | Get all names and enter them in BTTT | M&E/Lead farmer | March-April |
| 3. | Names of beneficiaries not separately recorded for individual researchers | Record names by researcher and technology | Lead farmer | March -April |